

Amendments to the Claims:

This listing of claims will replace all prior versions and listing of claims in the application.

Listing of Claims:

28. (Canceled)

29. (Currently Amended) A radiological imaging apparatus comprises:

a bed for carrying a test subject; and

an image pickup apparatus,

wherein said image pickup apparatus comprises:

a radiation detector ring structure that detects radiation from said test subject and includes a plurality of radiation detectors arranged around said bed in a ring form;

an X-ray source that irradiates said test subject with X-rays;

a first X-ray source transfer apparatus that transfers said X-ray source in the circumferential direction of said radiation detector ring structure; and

~~The radiological imaging apparatus according to claim 28, further comprising a~~ second X-ray source transfer apparatus that transfers said X-ray source inside said radiation detector ring structure in an axial direction transfer apparatus that transfers said X-ray source in the axial direction of said radiation detector ring structure.

30. (Currently Amended) ~~The~~ A radiological imaging apparatus according to claim 28 ~~29~~, wherein said X-ray source moves in a circumferential direction of said radiation

detector ring structure inside said radiation detector ring structure.

31. (Canceled)

32. (Currently Amended) ~~The~~A radiological imaging apparatus ~~according to claim 34, comprises:~~

a bed for carrying a test subject; and

an image pickup apparatus,

wherein said image pickup apparatus comprises:

a radiation detector ring structure that detects radiation from said test subject and includes a plurality of radiation detectors arranged around said bed in a ring form;

an X-ray source that irradiates said test subject with X-rays; and

an X-ray source transfer apparatus that transfers said X-ray source outside said radiation detector ring structure in the circumferential direction of said radiation detector ring structure,

wherein said X-ray source is placed outside said radiation detector ring structure in a direction of a radius of said radiation detector ring structure, and said radiation detector ring structure forms a slit that lets X-rays radiated from said X-ray source pass through toward the inside of said radiation detector ring structure is formed between said radiation detectors of said radiation detector ring structure.

33. (Currently Amended) ~~The~~A radiological imaging apparatus ~~according to claim 32, comprises:~~

a bed for carrying a test subject; and
an image pickup apparatus,
wherein said image pickup apparatus comprises:
a plurality of radiation detector ring structures that detect radiation from
said test subject and include a plurality of radiation detectors arranged around said
bed in a ring form, said radiation detector ring structures being placed in an axial
direction of said radiation detector ring structures;
an X-ray source that irradiates said test subject with X-rays; and
an X-ray source transfer apparatus that transfers said X-ray source
outside said radiation detector ring structures in the circumferential direction of said
radiation detector ring structures,
wherein said X-ray source is placed outside ~~plurality of~~ said radiation
detector ring structures, ~~are placed in the axial direction~~ and a slit that lets X-rays
radiated from said X-ray source pass through toward the inside of said radiation
detector ring structures is formed between said radiation detector ring structures.

34. (Previously Amended) The radiological imaging apparatus according to claim 32, wherein a collimator through which said X-rays pass is placed between said slit and said radiation detectors and said radiation detectors are placed around said collimator.

35. (Original) The radiological imaging apparatus according to claim 31, wherein said X-ray source is placed outside said radiation detector ring structure in the axial direction of said radiation detector ring structure so that X-rays radiated from said X-

ray source reach said radiation detectors of said radiation detector ring structure.

36. (Original) The radiological imaging apparatus according to claim 28, wherein said radiation detector is a semiconductor radiation detector.

37. (Original) The radiological imaging apparatus according to claim 28, wherein said respective radiation detectors output both a first detection signal which is the detection signal of said X-rays which is one type of said radiation that have passed through said test subject and a second detection signal which is the detection signal of γ -rays which is another type of said radiation radiated from said test subject.

38. (Original) The radiological imaging apparatus according to claim 37, further comprising a controller that instructs said X-ray source to radiate and stop radiating X-rays alternately and to radiate X-rays for a set time.

39. (Original) The radiological imaging apparatus according to claim 37, further comprising a tomographic image data creation apparatus that creates first tomographic image data of said test subject based on said first detection signal, creates second tomographic image data of said test subject based on said second detection signal and creates fused tomographic image data combining said first tomographic image data and said second tomographic image data.

40. (Original) The radiological imaging apparatus according to claim 28, wherein said radiation detector outputs an output signal including a first detection signal

which is the detection signal of said X-rays which is one type of said radiation that have passed through said test subject and a second detection signal which is the detection signal of γ -rays which is another type of said radiation radiated from said test subject.

41. (Original) The radiological imaging apparatus according to claim 40, further comprising a signal discriminator that separates said first detection signal and said second detection signal from said output signal entered and is connected to each of said plurality of radiation detectors.

42. (Original) The radiological imaging apparatus according to claim 41, further comprising a tomographic image data creation apparatus that creates first tomographic image data of said test subject based on said first detection signal, creates second tomographic image data of said test subject based on said second detection signal and creates fused tomographic image data combining said first tomographic image data and said second tomographic image data.

43. (Currently Amended) A radiological imaging apparatus ~~comprisses~~comprises:
a bed for carrying a test subject; and
an image pickup apparatus,
wherein said image pickup apparatus comprises:
a rotatable radiation detector ring structure that detects radiation from
said test subject and includes a plurality of radiation detectors that detects radiation
~~from said test subject and is arranged~~ around a bed in a ring form;

~~_____ a rotating radiation detector ring structure;~~
an X-ray source that rotates together with said radiation detector ring structure and irradiates said test subject with X-rays; ~~and~~
a drive unit that rotates said radiation detector ring structure; and
_____ an X-ray source transfer apparatus that is provided on said radiation detector ring structure and transfers said X-ray source in an axial direction of said radiation detector ring structure.

44. (Original) The radiological imaging apparatus according to claim 43, wherein said radiation detector is a semiconductor radiation detector.

45. (Original) The radiological imaging apparatus according to claim 43, wherein said radiation detector outputs a first detection signal which is a detection signal of said X-rays which is one type of said radiation that have passed through said test subject and a second detection signal which is a detection signal of γ -rays which is another type of said radiation radiated from said test subject.

46. (Currently Amended) A radiological imaging method of carrying out an X-ray computed tomographic inspection and PET inspection on a test subject using:

a radiation detector ring structure including a plurality of radiation detectors which detects radiation from said test subject and which ~~is~~are arranged around said bed in a ring form;

an X-ray source that irradiates said test subject with X-rays; ~~and~~
a first X-ray source transferring means for transferring said X-ray

source in the circumferential direction of said radiation detector ring structure; and
a second X-ray source transfer apparatus that transfers said X-ray
source inside said radiation detector ring structure in an axial direction of said
radiation detector ring structure.

47. (New) A radiological imaging apparatus according to claim 32, wherein each of said radiation detectors outputs an X-ray detection signal which is one of said radiation and a γ -ray detection signal which is the other one of said radiation.

48. (New) A radiological imaging apparatus according to claim 47, further comprising a sectional image data creation apparatus that creates a first sectional image data of said subject on the basis of said X-ray detection signal and a second sectional image data of said subject on the basis of said γ -ray detection signal and creates a combined sectional image data obtained by combining said first and second sectional image data.

49. (New) A radiological imaging apparatus according to claim 33, wherein each of said radiation detectors outputs an X-ray detection signal which is one of said radiation and a γ -ray detection signal which is the other one of said radiation.

50. (New) A radiological imaging apparatus according to claim 49, further comprising a sectional image data creation apparatus that creates a first sectional image data of said subject on the basis of said X-ray detection signal and a second sectional image data of said subject on the basis of said γ -ray detection signal and

Appl. No. 10/692,820
Amendment dated January 26, 2005
Reply to Office Action of July 27, 2004

creates a combined sectional image data obtained by combining said first and second sectional image data.